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What drives household consumption in the EU-28?

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Given that final consumption of households has contributed on average to broadly 60% of EU-28 GDP since 2001, an assessment of the drivers behind its dynamics is quite timely in a context of gradual economic recovery. Empirical analyses including 19 EU-28 economies suggest that disposable income of households, consumer credit markets and the developments in housing markets have had a significantly positive impact on the growth of household final consumption since 2001. On the other hand, demographic trends do not seem to have played any significant role.

1. Introduction

As shown in a companion ECRI Commentary,[1] household consumption in the 28 EU member states has, on average, accounted for 57.8% of annual GDP since 2001. While it was by far the main driver of GDP growth in the 2001-07 period, its contribution has been dramatically lower between 2010 and 2014. As the economy is gradually recovering, a robust and sustainable growth in private consumption will be essential for the economic recovery to gain momentum. Against that backdrop, a quantitative analysis of the main determinants of household consumption since 2001 will help provide some insights on the way policies should be conducted.

As analysed in Annexes 1, 2 and 3, there are four main types of drivers behind private consumption of households in a given economy:

- Direct resources available for consumption (through disposable income of households),
- Consumer credit market (through the stock of consumer credit and lending standards),
- Valuation of assets (through nominal house prices) and
- Demographic trends (use of the variable on the population aged 29-65 years).

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[1] Sylvain Bouyon, "Household final consumption: The key driver for a sustainable recovery?", ECRI Commentary No. 18, ECRI, Brussels, 4 December 2015.

2. Key role of disposable income

In line with the assumptions made in Annex 1 on the "Methodologies and data used for the empirical study", disposable income of households is a positive, robust and significant determinant of private consumption. According to the results of the study, a 1% increase in disposable income of households translates in a rise in private consumption of households within a 0.51-0.75% range, depending on the underlying assumptions (see Table 1). Given that private consumption of households has accounted for about 60% of GDP since 2001, it can be reasonably assumed that a 1% increase in disposable income of households will raise real GDP by a significant amount within the framework of the model. The effect of variations in disposable income remains very strong both in the EU-15 and new member states (NMS).

3. Poor performance of consumer credit markets in the EU-28 since 2008

As regards the overall contribution of consumer credit to household private consumption over the 2001-14 period, the stock of consumer credit has had a noticeable impact. Overall, by considering the whole sample, the model suggests that a 5% increase in the outstanding amount of consumer credit should result in an increase in private consumption in the range of 0.23-0.28%, corresponding to a lower but still noticeable rise in real GDP. By considering lending standards, panel data regressions in Annex 2 suggest that a contraction of 50 bps in nominal interest rates will boost household private consumption by 0.15%.[2] Nevertheless, robustness tests tend to show that the relationship is not significant at country group levels (as shown in Annex 3).

As revealed by the latest ECRI Statistical Package,[3] consumer credit recorded a relatively good performance in 2014, as its outstanding value increased by +1.4% in the EU-28 in nominal terms.[4] Nevertheless, the year-on-year (y-o-y) figures have been partly distorted by the bilateral exchange rate movements between the Pound Sterling and the euro. While the UK consumer credit market rose by +14.1% in euro, the variation of its value in domestic currency reached 'only' +6.6%. As a result, the contribution of the UK to the EU-28 consumer credit market growth in euro stood at 2.9 pp.[5] After excluding the UK from the EU-28 market, aggregate consumer credit contracted by -1.9%, mirroring the poor performance of Germany (-3.1%), Italy (-2.4%), the Netherlands (-17.1%) and Spain (-6.5%). On the other hand, the stocks increased in Belgium (+2.7%), France (+2.6%), Finland (+3.0%), Greece (+3.5%), Luxembourg (+20.8%) and Slovakia (+13.1%).

When considered from 2001, two sub-periods can be analysed: a pre-crisis period (2001-07) and a crisis/post-crisis period (2008-14). During the first period, the stock of consumer loans was growing at a steady pace in almost all EU member states, with the notable exceptions of Austria and Germany (see Figure 1). New member states (NMS) such as Czech Republic, Estonia and Hungary, and EU-15 member states such as Greece even experienced explosive

[2] Bps stands for basis points (an increase of 1 percentage point is equivalent to 100 bps).

[3] "ECRI Statistical Package 2015 on Consumer Credit in Europe", September 2015, ECRI, Brussels (www.ceps.eu/publications/ecri-statistical-package-2015-consumer-credit-europe).

[4] In line with the definition of the ECB, the definition of consumer credit is a follows: "Loans granted to households for personal use in the consumption of goods and services. Credit granted to the sole proprietors and unincorporated partnerships is comprised in this category if the reporting financial institutions know that the loan is predominantly used for personal purposes."

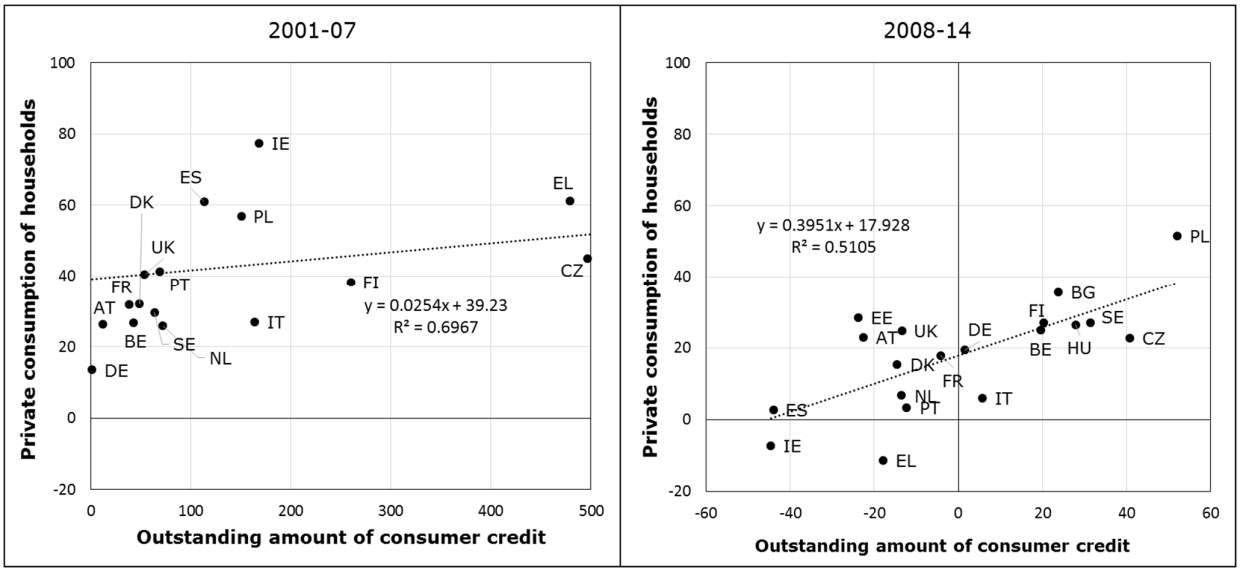
[5] Pp stands for percentage point.

growth rates (above 25% a year on average), as consumer credit markets in these countries were still at embryonic stages at the end of the nineties. As suggested by the model, this rapid development most likely has contributed to the robust growths in household final expenditure recorded during the period.

Nevertheless, since the onset of the 2008-09 financial crisis, the situation has deteriorated (see Figure 1). Ten out of the 19 economies of the sample registered a noticeable or pronounced contraction between 2008 and 2014 in their level of outstanding credit. For instance, consumer credit in Ireland and Spain registered a cumulative contraction above 40% over the period. On the other hand, the domestic market has continued to develop in the NMS outside of the euro area (Bulgaria, Czech Republic, Hungary and Poland) and in some of the economies that have been the most resilient to the financial crisis and its persistent effects: Belgium, Germany, Finland and Sweden. This mixed bag might explain why the second group of countries has performed better in terms of household private consumption.

Given that the stock of consumer credit has a significantly positive impact on the dynamics of household consumption, the continuous contraction recorded since the onset of the financial crisis might partly explain the poor performance of household consumption in recent years. Although the model assumes that the stock of consumer credit affects consumer credit, it is also likely that higher consumption results in further demand for consumer credit. The relationship between credit and consumption might therefore be based on interactions rather than on a unique sense of causality.

Figure 1. Private consumption of households and outstanding amount of consumer credit (cumulative change over the period, in nominal terms, in %)



Source: CEPS-ECRI.

4. A significant and robust positive contribution of housing prices

In theory, price developments in the housing market can affect consumption of households through two channels.[6] Firstly, since housing is a major component of households' wealth, rising house prices may stimulate private expenditure by increasing households' perceived wealth (*perceived wealth effect*). Increasing housing equities may boost consumer confidence and the need to build precautionary savings could fade. Conversely, the loss of housing equities could damage consumer confidence, resulting in further precautionary savings to offset the loss, hereby affecting private consumption negatively.

Secondly, persons who do not own a house and wish to acquire housing partially or entirely through an accumulation of savings might boost their savings even further following the increase in house prices (*target saving effect*), resulting in a decrease in private consumption. As a result, the theoretical impact of rising house prices on private consumption is ambiguous. Improved perceived wealth should trigger positive effects, whereas savings for those who plan to purchase housing could spike to the detriment of private consumption.

The empirical results in Annexes 2 and 3 indicate a significant and robust positive correlation between nominal house prices and household private consumption in the EU-28 (a 5% increase in housing prices will raise private consumption by 0.30%-0.39%). Based on the theoretical assumptions developed above, as a consequence of rising housing prices, the positive effect triggered by improved perceived wealth (*perceived wealth effect*) is likely to more than offset the negative effect sparked by the increase in saving for the persons who intend to acquire a dwelling (*target saving effect*).

5. Insignificant impact of demographic trends

According to the life cycle hypothesis, consumption/savings behaviour of households evolves over three stages. First, households will tend to dissave at the beginning of their careers (often implying low or negative wealth). Next, gradually, they accumulate savings to the detriment of private consumption for the purpose of preparing for their pension, often maximising their savings rates shortly before retirement age.[7] Finally, during their retirement years, they dissave again (by using the savings accumulated during the second period of their life). This implies that the general aging of the population should lead to a contraction in the overall household savings rate and a higher propensity for private consumption.

These mechanisms are approached by the share of the population between 29 and 65 years old. An increasing share should contribute to lower private consumption, whereas a decreasing share would imply higher dissaving development, thereby boosting private consumption. Results published in Annexes 2 and 3 hint at an insignificant impact of

[6] In theory, housing prices might affect private consumption through a third channel. An increase in housing prices provides stronger collateral and greater accessibility to credit markets (*financial access effect*). Homeowners who were 'forced' to save in order to acquire consumer goods prior to the inflation of housing prices can contract consumer loans more easily and have fewer incentives to save (Campbell et al., 2007). Here, some problems of multi-causality might arise, as the amount of consumer loans might be affected by housing prices. However, the role of housing collateral in the case of consumer credits might be marginal. As a result, the risk of endogeneity is likely to be very low (this risk has not been controlled for in the regressions).

[7] The savings rate is the ratio of household savings to household disposable income over a given period. This implies that rising savings rates mirror a lower propensity for consumption.

demographic trends on the developments in household private consumption. This result is confirmed for both the EU-15 and NMS and suggests that the life cycle hypothesis does not apply in the model.

Table 1. Impact of a specific variation in each determinant of private consumption

Variables	Variation	Impact on household's private consumption
Disposable income	+1% increase	Between +0.56% and +0.78%
Stock of consumer credit	+5% increase	Between +0.26% and +0.29%
Nominal interest rate	-50 bps decrease[8]	+0.16%
Nominal house price	+5% increase	Between +0.30% and +0.39%

Notes:

- The information included in the Table 2 is based on the results of the regressions conducted in Annexes 2 and 3.
- Bps stands for basis points (an increase of 1 pp is equivalent to 100 bps).

6. Conclusion

Based on a sample of 19 EU-28 economies, empirical results indicate that disposable income of households, stocks of consumer loans and housing prices have a significantly positive impact on the growth of household final consumption over the 2001-14 period. On the other hand, demographic trends do not seem to play any significant role.

In terms of policy implications, these results suggest that:

- Provided that transmission mechanisms are partly or fully operational in retail credit markets, monetary easing should contribute to further private consumption.
- The monitoring of housing developments is necessary to better anticipate future developments of household final consumption.
- Policies aimed at boosting disposable income of households, such as lower income taxes or higher allowances, should boost private consumption.

References

Campbell, J.Y. and J.F. Cocco (2007), "How do house prices affect consumption? Evidence from micro data", *Journal of Monetary Economics*, Elsevier, Vol. 54(3), 591-621, April.

Hausman, J.A. (1979), "Specification Tests in Econometrics", *Econometrica*, 46, 1251-71.

[8] Bps. stands for basis points (an increase of one pp is equivalent to 10 bps.).

Annex 1. Methodologies and data used for the empirical study

Four groups of determinants have been considered in the empirical study:

- Direct resources available for consumption (through disposable income of households);
- Consumer credit market (through the stock of consumer credit; nominal interest rate and real interest rate);
- Valuation of assets (through nominal house prices);
- Demographic trends (use of the variable on the population aged 29 to 65).

- *Disposable income*:

Disposable income remains at the core of the determinants behind private consumption. The data is provided by Eurostat and is in percentages of variation (in nominal terms and domestic currency).

- *Consumer credit*:

The impact of consumer credit on household private consumption can follow two approaches:

- Activity approach and
- Lending standard approach

The first approach considers a variable mirroring the level of activity of consumer credit on a given market. This level can be measured by a "stock value" at a given time or a "new businesses value" during a given period. The impact of the "new business value" on the amount of private consumption is relatively clear: for each unit of new credit, there is one more unit of private consumption. However, the methodologies used to develop statistics on "new businesses" differ markedly across member states and, in some of these countries, the data is not available.

Therefore, the "stock value" has been preferred due to its greater availability and consistency across EU member states. For a given period, the variation in the outstanding amount results from the difference between, on one hand, the new loans (including the refinanced loans) and, on the other hand, the reimbursed loans.

The second approach integrates proxies to reflect the evolution of lending standards. There are three main types of variables to be considered within this approach: nominal interest rate, real interest rate and the "lending standards" developed by the Bank Lending Survey published on a quarterly basis by the ECB. The last provides detailed information on the evolution of lending standards for consumer credit markets, but it covers only a few euro area economies and has therefore not been included within the empirical study.

The assumption behind the use of "nominal interest rates" as a determinant is that higher rates imply tightening of lending standards, whereas lower rates reflect an easing in these lending standards. One of the drawbacks is that financial organisations usually provide data on nominal rates for "new businesses" rather than for "outstanding amounts". Nevertheless, data on nominal rates for "new businesses" remains a good proxy, notably due to the fact that new businesses are included in the total stock on a regular basis.

Finally, the real interest rate is the nominal interest rate deflated by the inflation rate in consumer price index. It aims at analysing the behaviour of households in their trade-off between consumption, saving and credit contracting. The impact of real interest rates on the level of consumption might nevertheless be ambiguous, given that an increase in the consumer

price index might discourage consumption, whereas it results in lower real interest rates. Owing to these ambiguities, the impact of real interest rates has not been tested.

The stock of outstanding consumer loans is provided by the ECRI Statistical Package and the variation in percentages is used in the regressions. As regards nominal interest rates, the regressions use the data from the ECB. This data concerns rates on new businesses. For euro area countries, the nominal interest rate is approached via the annualised agreed rate (AAR)/narrowly defined effective rate (NDER), while the annual percentage rate of charge is used for non-euro area countries. The only exception is the UK, where regressions use the annualised agreed rate (AAR)/narrowly defined effective rate (NDER) for loans with a maturity between one and five years. All the times series of interest rates are in variation in bps (which explain why the coefficients published in the Annex 2 and Annex 3 are so small).

- *Valuation of assets*:

Housing prices are used as a proxy of the valuation of assets of households. Indeed, dwellings remain the main share of most households' wealth, and the quality and consistency of data on housing prices (across countries and over time) have increased markedly in recent years in the EU. As such, the regressions integrate the variations in percentage points of housing prices (typically for all dwellings). These time series are provided by the ECB.

- *Demographic trends*:

As stated in "4. Insignificant impact of demographic trends", the type of impact of demographic trends results from the life cycle hypothesis. The data used to approach the related mechanisms is "the population between 29 and 65 years old", provided by Eurostat.

Annex 2. Economic determinants of private consumption of households in the EU-28 (random effects, 2000-14)[9]

Independent variables			Demographic Effects		Wealth Effects	
	(a)	(b)	(c)	(d)	(e)	(f)
Disposable income of households	**0.615*** (0.040)**	**0.780*** (0.038)**	**0.616*** (0.040)**	**0.780*** (0.038)**	**0.560*** (0.042)**	**0.715*** (0.046)**
Stock of consumer credit	**0.056*** (0.009)**		**0.058*** (0.009)**		**0.052*** (0.009)**	
Nominal interest rate		**-0.003** (0.001)**		**-0.003** (0.001)**		**-0.003** (0.001)**
Nominal house price					**0.077*** (0.020)**	**0.059*** (0.023)**
29-65 share			0.179 (0.154)	-0.079 (0.147)	0.095 (0.152)	-0.104 (0.145)
Year	-0.001 (0.042)	-0.006 (0.041)	0.020 (0.045)	-0.014 (0.044)	0.036 (0.044)	-0.000 (0.044)
Constant	**1.233*** (0.422)**	**0.994** (0.442)**	**1.025** (0.459)**	**1.080** (0.470)**	**0.914** (0.448)**	**1.040** (0.465)**
R-squared (within)	0.609	0.653	0.611	0.653	0.640	0.669
(between)	0.943	0.925	0.945	0.924	0.930	0.910
(overall)	0.687	0.698	0.689	0.699	0.706	0.708
Prob > F	0.00	0.00	0.00	0.00	0.00	0.00
Number of countries	19	19	19	19	19	19
Number of observations	263	223	263	223	263	223

Notes:
***, ** and * denote significance at 1%, 5% and 10%, respectively.

Variations in stock of consumer credit, the 29-65 demographic share, disposable income of households and private consumption are in percentages.

Variations in nominal house price are in percentage points.

Variations in real interest rate and nominal interest rate are in basis points.

Countries covered: Austria, Belgium, Bulgaria, Czech Republic, Germany, Denmark, Estonia, Greece, Spain, Finland, France, Hungary, Ireland, Italy, Netherlands, Poland, Portugal, Sweden and the UK.

[9] Owing to the results of a simple Hausman specification test (Hausman, 1979), the random effects model is preferred to the fixed effects model. In panel data econometrics, the Hausman test is often used to differentiate between the fixed effects model and the random effects model. Under the current specification and due to the results of the test, the initial hypothesis that the individual-level effects are adequately modelled by a random effects model is reasonably rejected for the 10 regressions shown in the Annex 2 and Annex 3.

Annex 3. Economic determinants of private consumption of households in the EU-15 and NMS (random effects, 2000-14)[10]

Independent variables	EU15		NMS	
	(g)	(h)	(i)	(j)
Disposable income of households	**0.582*** (0.051)**	**0.608*** (0.057)**	**0.461*** (0.100)**	**0.665*** (0.127)**
Stock of consumer credit	**0.043*** (0.011)**		**0.036* (0.023)**	
Nominal interest rate		-0.000 (0.001)		**-0.004* (0.002)**
Nominal house price	**0.120*** (0.024)**	**0.128*** (0.026)**	**0.077* (0.042)**	0.023 (0.054)
29-65 share	0.068 (0.130)	0.014 (0.140)	-0.045 (0.575)	-0.526 (0.529)
Year	0.074* (0.038)	0.014 (0.043)	-0.133 (0.148)	-0.124 (0.149)
Constant	**0.264* (0.393)**	**0.865* (0.458)**	**3.786** (1.685)**	**3.106* (1.806)**
R-squared (within)	0.700	0.688	0.606	0.689
(between)	0.838	0.775	0.840	0.875
(overall)	0.707	0.691	0.632	0.721
Prob > F	0.00	0.00	0.00	0.00
Number of countries	14	14	5	5
Number of observations	195	174	68	49

Notes:
***, ** and * denote significance at 1%, 5% and 10%, respectively.
Variations in stock of consumer credit, the 29-65 demographic share, disposable income of households and private consumption are in percentages.
Variations in nominal house price are in percentage points.
Variations in real interest rate and nominal interest rate are in basis points.
Countries covered: Austria, Belgium, Bulgaria, Czech Republic, Germany, Denmark, Estonia, Greece, Spain, Finland, France, Hungary, Ireland, Italy, Netherlands, Poland, Portugal, Sweden and the UK.

[10] Owing to the results of a simple Hausman specification test (Hausman, 1979), the random effects model is preferred to the fixed effects model. In panel data econometrics, the Hausman test is often used to differentiate between the fixed effects model and the random effects model. Under the current specification and due to the results of the test, the initial hypothesis that the individual-level effects are adequately modelled by a random effects model is reasonably rejected for the 10 regressions shown in the Annex 2 and Annex 3.